REMARKS

In the Office Action, claims 7-9 and 12-18 are rejected under 35 U.S.C. § 112, first paragraph; claim 14 is rejected under 35 U.S.C. § 112, second paragraph; and claims 7-9 and 12-18 are rejected under 35 U.S.C. § 103. Claims 7, 12 and 14 have been amended. Applicants believe that the rejections have been overcome or are improper in view of the amendments and for the reasons set forth below.

In the Office Action, claims 7-9 and 12-18 are rejected under 35 U.S.C. § 112, first paragraph. With respect to claim 7, Applicants have amended same to recite, in part, that the mixture of the fluorine polymer and the aromatic vinyl-conjugate diene polymer of the binder ranges from 10 wt% to about 15 wt% of a total weight of a negative electrode. This is supported in the specification, for example, Samples 1-12 on pages 10-15. Applicants further note that they have amended claim 7 with respect to same for clarification purposes and thus do not intend to narrow and/or disclaim any claimed subject matter in view of same.

With respect to claims 12 and 13, Applicants have amended claim 12 to recite that the negative electrode comprises a cellulose derivative as a viscosity thickening agent. Support for such amendment can be found in the specification, for example, on page 23 at lines 19-24. Applicants note for the record that this amendment was made for clarification purposes and thus Applicants do not intend to narrow and/or disclaim any claimed subject matter in view of same.

With respect to the rejection of claims 17 and 18, the Patent Office alleges that the fluorine polymer and aromatic vinyl-conjugate diene polymer should be limited to polyvinylidene fluoride and styrene-butadiene latex, respectively. Applicants believe that the Patent Office's position regarding same is improper.

At the outset, Applicants believe that the specification provides sufficient support for the subject matter as claimed in claim 17 and 18 contrary to the Patent Office's position. Indeed, the specification provides that the fluorine polymer and aromatic vinyl-conjugate diene polymer can include a number of different polymers. For example, one or more types of the following fluorine polymers may be employed: polytetrafluoroethylene, fluorine rubber, tetrafluoroethylene propylene rubber, silicon fluoride rubber, ethylene tetrafluoroperfluoroalkylvinyl ether resin (PFA), ethylene tetrafluoroethylene copolymer resin (ETFE), polychlorotrifluoroethylene (PCTFE) and tetrafluoroethylene hexafluoropropylene

copolymer (FEP). The aromatic vinyl-conjugate diene polymer may be styrene-butadiene latex or the like, such as a material having a hydrogenated terminal, a material having an end modified with a carboxyl group or the like may be employed to obtain a similar effect. See, specification, pages 5-6.

Further, examples 3 and 4 of the specification are illustrative examples of the claimed invention and should not be deemed and relied on in such a way to limit the scope of the claimed invention as the Patent Office seems to suggest. Instead, Applicants believe that the specification, such as examples 3 and 4, provide sufficient support for the broader class of compounds (i.e., fluorine polymer and aromatic vinyl-conjugate diene polymer) as defined in claims 17 and 18.

Based on at least these reasons, Applicants believe that the pending claims fully comply with 35 U.S.C. § 112, first paragraph. Therefore, Applicants respectfully request that this rejection be withdrawn.

In the Office Action, claim 14 is rejected under 35 U.S.C. § 112, second paragraph. The Patent Office alleges that the term "a non-graphitizing carbon material" is unclear in meaning.

In response, Applicants have amended claim 14 to recite that the carbonaceous material is a non-graphite carbon material. Support for such amendment can be found in the specification, for example, on pages 4 and 5. As disclosed therein, examples of non-graphite materials can include pyrolytic carbon, coal cokes, pitch cokes, petroleum cokes, carbon black and the like. Therefore, Applicants believe that claim 14 as amended complies with 35 U.S.C. § 112, second paragraph. Applicants further note that the changes to same should not be deemed as an intent on the part of Applicants to cancel and/or disclaim any claimed subject matter in view of same.

Accordingly, Applicants respectfully request that the rejection of claim 14 under 35 U.S.C. § 112, second paragraph be withdrawn.

In the Office Action, claims 7-9 and 12-18 are rejected under 35 U.S.C. § 103. More specifically, claims 7-9, 12 and 14-18 are rejected in view of JP 06-215761 ("*Ozaki*") as evidenced by U.S. Patent No. 5,565,284 ("*Koga*"), U.S. Patent No. 5,527,643 ("*Sonobe*"), U.S. Patent No. 5,609,975 ("*Kasagawa*") and U.S. Patent No. 5,576,121 ("*Yamada*"); and claim 13 is rejected in view of *Ozaki* as evidenced by *Koga*, *Sonove, Kasagawa* and *Yamada* and further in view of JP 8-195201 ("*Abe*"). Applicants believe that the obviousness rejections are improper.

Of the pending claims at issue, claim 7 is the sole independent claim. Claim 7 relates to a non-aqueous electrolyte secondary battery. The secondary battery includes a positive electrode, a negative electrode and a separator disposed between the positive electrode and the negative electrode so as to form a laminate structure wherein the laminate structure is wound a plurality of times around a center portion of a non-aqueous electrolyte secondary battery. The negative electrode includes a binder and an active material wherein the binder includes a mixture of a fluorine polymer and an aromatic vinyl-conjugate diene polymer. The mixture ratio of the fluorine polymer to the aromatic vinyl-conjugate diene polymer ranges from about one to about 99 wherein the mixture of the fluorine polymer and the aromatic vinyl-conjugate diene polymer ranges from 10 wt% to about 15wt% of the total weight of a negative electrode.

Applicants have discovered that when the mix of the fluorine polymer and the aromatic vinyl-conjugate diene polymer is utilized as the binder, a capacity required for the battery can be effectively maintained. Further, a rise in the temperatures of the battery that may occur during external short circuiting can be prevented. It is believed that the desirable adhesive properties of aromatic vinyl-conjugate diene polymer can contribute to the prevention of the rise in temperature. When the aromatic vinyl-conjugate diene polymer is mixed with the fluorine polymer, a required capacity can also be maintained. See, specification, page 5, lines 13-21. Applicants have demonstrated the beneficial effects of the claimed binder content with respect to the initial capacity and the short circuit temperature as illustrated, for example, in Table 2 on page 19 and further supported in the corresponding written text of the specification.

In contrast, Applicants believe that the cited art is deficient with respect to the claimed invention. Foremost, Applicants question why the Patent Office can rely on *Ozaki*, let alone as its primary reference in the first place. Contrary to the Patent Office's position, *Ozaki* clearly teaches away from the claimed invention. As even admitted by the Patent Office, *Ozaki* discloses that the binder includes 3 to 7 wt% of the negative electrode. Indeed, this is outside of the claimed binder range of 10 wt% to about 15 wt%. Moreover, *Ozaki* suggests that a binder content greater than 7 wt% produces a cell that has undesirable properties as further admitted by the Patent Office. Clearly, one skilled in the art in viewing same would not be inclined to modify *Ozaki* to arrive at the claimed invention, even considering what the remaining references allegedly disclosed.

Based on at least these reasons, Applicants believe that the cited art is deficient with respect to the claimed invention. Therefore, Applicants respectfully submit that the cited art fails to render obvious the claimed invention.

Accordingly, Applicants respectfully request that the obviousness rejections be withdrawn.

For the foregoing reasons, Applicants respectfully submit that the present application is in condition for allowance and earnestly solicit reconsideration of the claims.

Respectfully submitted,

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